

50) (New) A system as in claim 28, wherein the non-linear material characteristics of the substrate portion causes modulation or demodulation of the received signal from the RF signal.--

REMARKS

An interview between the Examiner and Dr. Khorrami (one of the applicants) and Dennis Smid (one of the applicants' undersigned attorneys) was held on May 10, 2002 at the U.S. Patent and Trademark Office. The applicants and Mr. Smid wish to thank the Examiner for her time and consideration for such interview.

It is submitted that these claims, as originally presented, are patentably distinct over the prior art cited by the Examiner, and that these claims were in full compliance with the requirements of 35 U.S.C. §112. Changes to these claims, as presented herein, are not made for the purpose of patentability within the meaning of 35 U.S.C. §101, §102, §103 or §112. Rather, these changes are made simply for clarification and to round out the scope of protection to which Applicants are entitled.

Claims 27, 38, 39, 45, and 46 have been canceled herein. Claims 2-4, 6, 7, 9-11, 13-19, 22-24, 26, 29-36, 42, and 43, amended claims 1, 5, 8, 20, 21, 25, 28, 37, 40, 41, 44, and 47, and new claims 48-50 are in this application.

Claims 39 and 41 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims.

Claim 39 was dependent from claim 38 which, in turn, was dependent from independent claim 37. Independent claim 37 has been amended herein to include the limitations of dependent claims 38 and 39. Further, it should be noted that base independent claim 37 has

been amended herein. It is respectfully submitted that amended independent claim 37, and claims 40 and 41 dependent therefrom, are allowable.

Claims 44 and 45 were rejected under 35 U.S.C. 102(b) as being anticipated by Tyburski et al. U.S. Patent No. 4,912,471. Claims 1, 2, 6-9, 13-15, 17, 18, 21, 22, 25, 27, 37, 38 and 40 were rejected under 35 U.S.C. 103(a) as being unpatentable over Tyburski et al. in view of Spillman Jr. U.S. Patent No. 5,440,300. Claims 46 and 47 were rejected under 35 U.S.C. 103(a) as being unpatentable over Tyburski in view of Examiner's Official Notice. Claims 3-5, 10, 11, 16, 19, 20, 23, 24, 26, 28-36, 42 and 43 were rejected under 35 U.S.C. 103(a) as being unpatentable over Tyburski in view of Spillman, Jr. and Cole et al. U.S. Patent No. 3,707,711.

As previously mentioned, claims 27, 38, 39, 45, and 46 have been canceled herein. Further, as previously described, amended claim 40 is dependent from amended independent claim 37 and, as such, is submitted as being allowable. Further, independent claims 1, 8, 21, 28, and 44 (from which claims 2-7, 9-11, 13-20, 22-26, 29-36, 42-43, and 47 depend) have been amended herein in a manner similar to that discussed during the May 10th interview. At such time the Examiner indicated that these amended claims are distinguishable from the applied reference or references. Accordingly, it is respectfully submitted that claims 1-11, 13-26, 28-36, 42-44 and 47 as presented herein are distinguishable from the applied reference or references.

New claims 48-50 are in this application.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned **"Version with markings to show changes made."**

This is in response to the Examiner's statement of reasons for the indication of allowable subject matter included in the present Office Action. To the extent the Examiner's statement states, implies or is construed to mean that the claims are allowable over the prior art of record because the Examiner believes the claims should be interpreted to include one or more features or limitations not recited therein, Applicants' attorney disagrees with such an interpretation. Moreover, it is Applicants' contention that there is no particular limitation in the allowed claims that is more critical than any other. The issuance of the Examiner's statement of reasons for the indication of allowable subject matter should not be construed as a surrender by Applicants of any subject matter. It is the intent of Applicants, by their attorney, to construe the allowed claims so as to cover the invention disclosed in the instant application and all equivalents to which the claimed invention is entitled.

The Examiner has made of record, but not applied, several of U.S. patents. The applicants appreciate the Examiner's explicit finding that these references, whether considered alone or in combination with others, do not render the claims of the present application unpatentable.

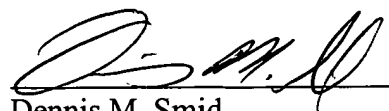
It is to be appreciated that the foregoing comments concerning the disclosures in the cited prior art represent the present opinions of the applicants' undersigned attorney and, in the event, that the Examiner disagrees with any such opinions, it is requested that the Examiner indicate where in the reference or references, there is the bases for a contrary view.

In view of the foregoing amendments and remarks, it is believed that all of the claims in this application are patentable over the prior art, and early and favorable consideration thereof is solicited.

Please charge any fees incurred by reason of this response and not paid herewith
to Deposit Account No. 50-0320.

Respectfully submitted,
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“VERSION WITH MARKINGS TO SHOW CHANGES MADE.”

IN THE CLAIMS

Cancel claims 27, 38, 39, 45, and 46 without prejudice.

Please amend claims 1, 5, 8, 20, 21, 25, 28, 37, 40, 41, 44, and 47 by rewriting the same as follows:

--1. (Twice Amended) A wireless communication system comprising:

a number of sensors each having one or more [an] antenna associated therewith and being adaptable to be located on or within an element, each sensor being adaptable to detect at least one respective predetermined characteristic of said element; and

control transceiver means, operable to communicate in a wireless manner with said number of sensors, for supplying a RF [power] signal to [a desired number of said sensors] at least one antenna; [so as to activate each respective antenna thereof and enable the desired]

whereby, in response to said RF signal, the respective sensor or sensors and the at least one antenna associated therewith generate by use of electromagnetic coupling therebetween a characteristic [to detect the respective at least one predetermined characteristic and to transmit an output] signal indicative of [the] a detected respective [at least one] characteristic or characteristics and modulate the same so as to obtain an output signal and transmit said output signal [to said control transceiver means].

--5. (Twice Amended) A wireless communication system as in claim 3, wherein the [desired sensor or sensors modulate the] characteristic signal is modulated with a power signal so as to obtain [and] the output signal [indicative of the detected respective at least one characteristic and transmits the modulated signal to said control transceiver means].—

--8. (Twice Amended) A wireless communication system comprising:

a number of actuators each [including an] having one or more antenna associated therewith and being adaptable to be located on or within an element and being adaptable for causing said element to deform in a desired manner when actuated; and

control transceiver means, operable to communicate in a wireless manner with said number of actuators, for supplying a [power] modulated command signal to at least one antenna; [a desired number of said actuators]

whereby, in response to said modulated command signal, material characteristics of the respective actuator or actuators cause said modulated command signal [so as] to [activate each respective antenna thereof and enable the desired actuator or actuators to] be demodulated and [cause] said element to achieve the desired deformation.--

--20. (Amended) A wireless communication system as in claim 10, wherein the desired actuator or actuators demodulates the received [power] modulated command signal so as to form an actuation signal.--

--21. (Amended) A system for monitoring and/or deforming a structure in a desired manner, said system comprising:

a number of devices each including at least one of a sensor and an actuator each having [an] one or more antenna associated therewith and being adaptable to be located on or within said structure, in which each said sensor is adaptable for monitoring at least one predetermined characteristic of said structure and each said actuator is adaptable for causing said structure to deform in said desired manner when actuated; and

control means for transmitting a command [modulated] signal to [a desired number of said devices] at least one antenna in a wireless manner; [so as to activate each respective antenna

thereof and enable each respective sensor to monitor the at least one predetermined characteristic of said structure and enable]

whereby, in response to said command signal, (i) the respective sensor or sensors and the at least one antenna associated therewith generate by use of electromagnetic coupling therebetween a characteristic signal indicative of a detected respective characteristic or characteristics and modulate the same so as to obtain an output signal and transmit said output signal and (ii) the respective actuator or actuators [to] cause said structure to deform in said desired manner.--

--25. (Amended) A system as in claim 21, wherein said control means [transmits said modulated signal to said desired number of said devices] communicates with each said device over a microwave frequency range.—

--28. (Amended) A system for causing a structure to be deformed in a desired manner, said system comprising:

a number of sensors each having [an] one or more micro-strip type antenna associated therewith and being adaptable to be located on or within said structure and being adaptable for measuring at least one predetermined characteristic of said structure;

a number of actuators each having [an] one or more micro-strip type antenna associated therewith and being adaptable to be located on or within said structure and being adaptable for causing said structure to deform in said desired manner when actuated;

control means for transmitting a microwave signal in a wireless manner to a desired number of said sensors [so as to activate each respective antenna thereof and enable each of said desired number of sensors to provide a sensed signal indicative of the measured at least one predetermined characteristic], wherein, in response thereto, the respective sensor or sensors and

the at least one antenna associated therewith generate by use of electromagnetic coupling therebetween a characteristic signal indicative of a detected respective characteristic or characteristics; and

means for processing each said [sensed] characteristic signal and for supplying each processed signal to appropriate one or ones of the actuators so as to actuate the same and cause said structure to deform in said desired manner.—

--37. (Amended) An element for use in a system for monitoring and/or deforming a structure in a desired manner, said element having [a single] at least one antenna associated therewith and being adaptable to be located on or within said structure and being adaptable to operate as at least one of a sensor device and an actuator device, in which said element monitors at least one predetermined characteristic of said structure when operating as a sensor device and in which said element causes said structure to deform in said desired manner when operating as an actuator, and, in which said element is operable to receive a [modulated] signal [is] transmitted [to said element] thereto in a wireless manner [so as] to activate the antenna thereof and enable said element to monitor the at least one predetermined characteristic of said structure when operating as a sensor device and enable said element to cause said structure to deform in said desired manner when operating as an actuator, wherein said element is adaptable to operate simultaneously as a sensor device and an actuator device, and wherein the antenna is a micro-strip type antenna and wherein said element includes a grating layer.—

--40. (Amended) An element as in claim [38] 37, wherein said element includes only passive electronic devices.--

--41. (Amended) An element as in claim [39] 37, further having a protective cover layer and a substrate having a slot and a feedline.--

--44. (Amended) An element for use in a system for monitoring and/or deforming a structure in a desired manner, said element [having a single antenna and] being adaptable to be located on or within said structure and having at least one antenna and a rechargeable type storage device, in which energy is provided to said [element] rechargeable type storage device from a signal transmitted to said antenna in a wireless manner for storage thereat.--

--47. (Amended) An element as in claim [46] 44, wherein said rechargeable type storage device is a thin film battery.—

Please add the following new claims:

--48) (New) An element for use in a system for monitoring and/or deforming a structure in a desired manner, said element having at least one antenna associated therewith and being adaptable to be located on or within said structure and being adaptable to operate as at least one of a sensor device and an actuator device, in which said element is operable to monitor at least one predetermined characteristic of said structure when operating as a sensor device and in which said element is operable to cause said structure to deform in said desired manner when operating as an actuator, and, in which said element is operable to receive a signal transmitted thereto in a wireless manner to activate the antenna thereof and enable said element to monitor the at least one predetermined characteristic of said structure when operating as a sensor device and enable said element to cause said structure to deform in said desired manner when operating as an actuator whereby, when operating as a sensor device, the respective sensor and the at least one antenna associated therewith generate by use of electromagnetic coupling therebetween a characteristic signal indicative of a detected respective characteristic or characteristics and modulate the same so as to obtain an output signal and transmit said output signal.

49) An element for use in a system for monitoring and/or deforming a structure in a desired manner, said element having at least one antenna associated therewith and being adaptable to be located on or within said structure and being adaptable to operate as at least one of a sensor device and an actuator device, in which said element monitors at least one predetermined characteristic of said structure when operating as a sensor device and in which said element causes said structure to deform in said desired manner when operating as an actuator, and, in which said element is operable to receive a signal transmitted thereto in a wireless manner to activate the antenna thereof and enable said element to monitor the at least one predetermined characteristic of said structure when operating as a sensor device and enable said element to cause said structure to deform in said desired manner when operating as an actuator, wherein the antenna is a micro-strip type antenna and wherein said element includes a grating layer.—

50) (New) A system as in claim 28, wherein the non-linear material characteristics of the substrate portion causes modulation or demodulation of the received signal from the RF signal.--